Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Unlicensed Use of the 6 GHz Band	)	ET Docket No. 18-295
	)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz	)	GN Docket No. 17-183
	)	

REPLY COMMENTS OF CENTURYLINK[1]

CenturyLink provides these reply comments in response to the Commission's Notice of Proposed Rulemaking in the above-referenced proceeding.[2] CenturyLink has an interest in this proceeding because it has both incumbent point-to-point fixed service use and incumbent fixed satellite service use in this band that will be impacted by the Commission's decisions regarding future use of this spectrum band. CenturyLink is not opposed to the Commission permitting unlicensed device use in the 6 GHz band, so long as incumbent use in this spectrum band is adequately protected. CenturyLink echoes the concerns of other commenters that the Commission will need to ensure the frequency coordination that permits unlicensed device use must remain sufficiently rigorous to ensure that the risk of harmful interference to incumbent operations remain very low. The Fixed Wireless Communications Coalition (FWCC) has effectively described the importance of a highly reliable methodology for protecting incumbent

[1] This filing is made on behalf of CenturyLink, Inc.'s subsidiary entities that own wireless licenses for use of spectrum in the 6 GHz band, including Qwest Corporation, subsidiary entities that provide video services and video transport services, including CenturyTel Broadband Services, LLC, and subsidiary entities that in the future may use spectrum in the band.

[2] *Unlicensed Use of the 6 GHz Band, Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, ET Docket No. 18-295, GN Docket No. 17-183, Notice of Proposed Rulemaking, FCC 18-147 (rel. Oct. 24, 2018), 2018 FCC LEXIS 2865 (NPRM); 83 Fed. Reg. 64506 (Dec. 17, 2018); Order, DA 19-142 (rel. Mar. 4, 2019).

fixed wireless use in this spectrum band and noted additional considerations required to successfully accomplish this task while permitting unlicensed device use in this spectrum band.[3]

CenturyLink also agrees with commenters who assert that (1) data in the Universal Licensing System (ULS) must be improved before it can be used as a basis for frequency coordination,[4] (2) frequency coordination should be based on actual path performance not the estimated typical performance of propagation models,[5] and (3) adjacent channel interference must be considered in frequency coordination.[6]

As CenturyLink has described previously, CenturyLink is an incumbent user of spectrum with more than 300 licenses for fixed microwave point-to-point facilities in this band.[7] CenturyLink also has fixed satellite services that transmit in this spectrum band. CenturyLink appreciates the Commission's determination to protect incumbent Fixed-Satellite Service operations in this band and agrees with the Commission that because those operations are Earth-to-space transmissions, unlicensed devices used terrestrially in this spectrum band are unlikely to cause interference to those transmissions. As such, CenturyLink focuses its comments here on sufficient protection of its use of this spectrum for its fixed microwave use in the form of hundreds of links in its wireline service infrastructure.

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[3] *See generally* Comments of Fixed Wireless Communications Coalition, Inc., filed herein, pp. 6-35 (Feb. 15, 2019) (FWCC Comments).

[4] Comments of the National Spectrum Management Association, filed herein, pp. 4, 11-15 (Feb. 15, 2019) (NSMA Comments); FWCC Comments, p. 28.

[5] Comments of Association of Public-Safety Communications Officials-International, Inc., filed herein, p. 13 (Feb. 15, 2019) (APCO Comments).

[6] APCO Comments, p. 12.

[7] *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz,* GN Docket No. 17-183, Comments of CenturyLink, pp. 1-2 (filed Oct. 2, 2017).

CenturyLink's microwave point-to-point links in this band are important segments in the backbone of its national communications network. These facilities enable CenturyLink to provide communications services particularly in more rural areas of the country where traditional wireline facilities are exceedingly difficult or expensive to place. These microwave facilities support wireline voice, narrowband data, and broadband services to rural communities including critical access to emergency services, E911 circuits that enable life-saving emergency communications, and circuits that aid the Federal Aviation Administration (FAA) in airport operations. They may also serve as diverse paths that can be critical to ensure communications are sustained if a primary path is disabled. These facilities also enable CenturyLink to provide communications infrastructure to support wireless communication services in these areas by providing backhaul of wireless communications.

Protection of Incumbent Spectrum Use from Interference from Unlicensed Devices Must Be as Effective at Avoiding Harmful Interference as the Current Frequency Coordination Process. CenturyLink's microwave links are extremely important to the robustness of CenturyLink's communications network. As such, CenturyLink is wary of additional uses of spectrum in this band that could cause harmful interference to its communications services. CenturyLink appreciates that the Commission has recognized the importance of protecting incumbent licensed use in this spectrum band.[8] But, if the Commission moves forward with unlicensed device use in this band, it must ensure that the protection mechanisms that it puts in place are extremely reliable in avoiding harmful interference. CenturyLink agrees with FWCC that a seemingly low risk of harmful interference is not

[8] NPRM, ¶ 20. CenturyLink also agrees that temporary fixed operations and conditionally authorized operations will also need to be protected from interference from unlicensed devices.

sufficient protection for microwave links carrying critical and essential communication services. Instead, sufficient protection must be the very low risk of harmful interference that is already the standard for these links.[9] FWCC has also raised several important concerns about the ways in which unlicensed devices could interfere with fixed wireless receivers that warrant careful consideration by the Commission.[10] The Commission also must insure that if any interference occurs it can be reliably identified and immediately eliminated.

The Commission Should Encourage Updating of ULS Data prior to Use of that Data for Frequency Coordination. The Commission proposes that the automated frequency coordination (AFC) system use data from ULS to perform frequency coordination so that unlicensed devices will not interfere with incumbent uses of the band.[11] It is recognized in the initial comments that some ULS data, particularly receiver data, may be incomplete or in need of updating or improvement.[12] If the Commission intends to use that data for frequency coordination purposes in this band it should encourage incumbents with licenses in the band to review and update their information as needed. The current frequency coordination process, considers, but does not entirely depend on ULS data and affords an opportunity for a licensee to

[9] *See* FWCC Comments, pp. 2-3 ("To keep 96,000 FS systems operating at their present reliability, RLAN interference will have to be extremely improbable"); Comments of the Critical Infrastructure Coalition, filed herein, p. 11 ("The FCC should adopt rules which prevent unlicensed users in the band from even slightly increasing the incidence of . . . outages [to existing 6 GHz systems]" (Feb. 15, 2019) (Critical Infrastructure Coalition Comments).

[10] *See* FWCC Comments, pp. 9-12 (explaining why contrary to some views, (1) the placement of FS receivers high on towers does not make them safe from interference from ground-level unlicensed devices, (2) there remains a risk that unlicensed devices operated indoors will interfere with FS receivers; and (3) statistical analysis cannot reliably predict interference with FS receivers.)

[11] NPRM, ¶ 39.

[12] NSMA Comments, pp. 14-15; FWCC Comments, pp. 13, 28.

review and respond to a proposed use of spectrum that might interfere with their current use.[13] For the proposed automated frequency coordination process, however, it appears that there is no opportunity to respond during the coordination process prior to the use of the identified frequency. This places much greater reliance on the accuracy of a licensee's ULS data, and greater risk of harmful interference if for any number of reasons that data is inaccurate. To reduce the risk of harmful interference due to inaccurate ULS data the Commission should afford incumbent users a period of time to review and update their ULS data for any licenses using spectrum in the band without penalty and without filing fees.[14]

Frequency Coordination Should Be Based on Actual Path Performance.

CenturyLink agrees with commenters who assert that frequency coordination should be based on actual path performance and not the estimated typical performance of propagation models as proposed by the Commission.[15] To adequately protect fixed service links from harmful interference, the frequency coordination must evaluate actual interference for each link and not just modelled average interference. The high level of protection from harmful interference needed for incumbent fixed service use demands that frequency coordination in this band be set to avoid the worst-case scenario and not just an average scenario.

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[13] *See* Critical Infrastructure Coalition Comments, pp. 12-13 (describing the Prior Coordination Notice (PCN) period of the current frequency coordination process).

[14] *See also* FWCC Comments, pp. 28-29 (advocating for a reprieve from filing fees for licensees seeking to update ULS data if ULS data is to be used for frequency coordination); Critical Infrastructure Coalition Comments, p. 15 (same); Comments of the Utilities Technology Council, et al., filed herein, p. 13 (Sec. III.B) (recommending that if the Commission uses ULS data for frequency coordination it should allow at least six months for licensees to update ULS data) (Feb. 15, 2019) (UTC et al. Comments).

[15] APCO Comments, p. 13; FWCC Comments, pp. 13-14, 23-25. *See also* NPRM, ¶¶ 48-49.

Adjacent Channel Interference Should Be Considered in Frequency Coordination.

CenturyLink also agrees with commenters who continue to advocate that adjacent channel interference should be considered in frequency coordination.[16] For the reasons those commenters have explained, out-of-band emission limits will not adequately protect adjacent channel fixed service links.[17]

CenturyLink supports the Commission's efforts to permit use of unlicensed devices in the 6 GHz band so long as the Commission maintains the high level of frequency coordination necessary to rigorously protect incumbent fixed service use from harmful interference. The Commission should initially err on the side of over-protecting incumbent use. If, over time, the Commission and industry find that lesser protection may be sufficient to adequately protect fixed service use from harmful interference, adjustments could be made. But, it would be far better to ramp down protection at a later dater than to need to ramp up protection or prohibit unlicensed device use altogether because the initial framework allowed harmful interference to critical communication services.

Respectfully submitted,

CENTURYLINK

By: */s/ Tiffany West Smink*

Tiffany West Smink
931 14th St., 12th Floor
Denver, CO 80202
303-992-2506
Tiffany.Smink@CenturyLink.com

Its Attorney

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[16] *See, e.g.*, APCO Comments, p. 12; UTC et al. Comments, pp. 13-14 (Sec. III.C); Comments of Xcel Energy Services, Inc, filed herein, p. 7 (Feb. 15, 2019).

[17] *See, e.g.*, FWCC Comments, pp. 25-28.